

### Lesson 1.1.2 Transformations of Parent Graphs

- For the parent graph  $f(x) = x^2$ , sketch the original function following transformations on the same set of axes.
  - $f(x - 2)$
  - $f(x) - 3$
  - $2f(x)$
- Given the following function, state the equation of the parent graph, sketch the graph, and describe the transformation completely.

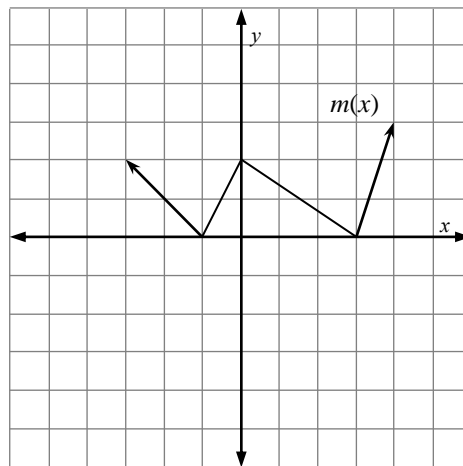
$$f(x) = -3(x - 1)^3 - 4$$

### Lesson 1.1.3 Basic Inverses and Function Operations

- Given  $f(x) = 2x^2 + 1$  and  $g(x) = \sqrt{2x - 3}$ , find and simplify the following function operations.
  - $f(x - 2)$
  - $f(g(x))$
  - $g(f(x))$
- If  $f(x) = 3x - 4$  and  $g(x) = x^2 + 3x - 1$ , find  $g(f(x))$  and simplify completely.
- Find the inverse of  $g(x) = \sqrt{2x - 1}$ .
- Find the inverse of  $f(x) = 4(2x - 3)^{1/3}$  and simplify completely.

### Lesson 1.1.4 Transformations of Non-Parent Graphs

- Given the graph of  $m(x)$ , sketch the following transformations.
  - $-2m(x)$
  - $m(x + 2) - 1$
  - $m(x - 1) + 3$



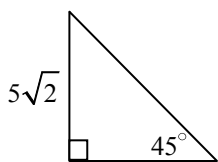
## Section 1.2 Point-Slope Form of a Line

1. Given two points,  $A(-2, 11)$  and  $B(6, -5)$ , complete the following problems.
  - a. Find the slope of  $\overline{AB}$ .
  - b. Find the equation of the line parallel to  $\overline{AB}$ , passing through the point  $(100, 0)$ .
  - c. Find the equation of the line perpendicular to  $\overline{AB}$ , passing through the point  $(-1, -3)$ .
  - d. Find the equation of the perpendicular bisector of  $\overline{AB}$ .
2. Write the equation of the line that passes through the midpoint of, and is perpendicular to, a segment with endpoints  $(-3, 4)$  and  $(4, -1)$ .

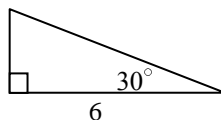
### Lesson 1.3.1 Law of Sines

1. Given  $\triangle GEO$ , where  $\angle G = 32^\circ$ ,  $\angle E = 81^\circ$ , and  $GE = 12$  feet.
  - a. Draw a diagram roughly to scale.
  - b. Solve the triangle completely.
  - c. Calculate the area of  $\triangle GEO$ .
5. Find the length of the missing leg and hypotenuse of the special right triangles below.

a.

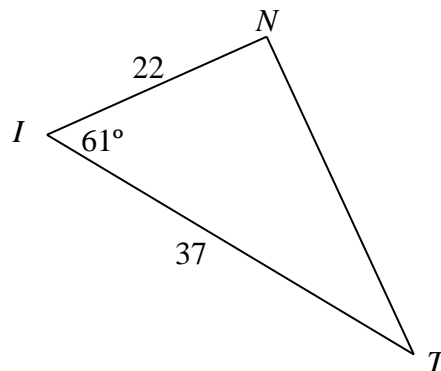
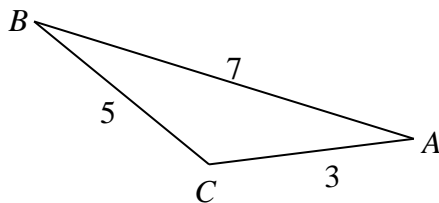


b.

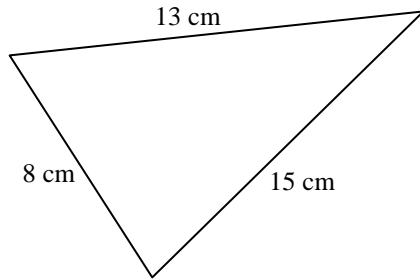


### Lesson 1.3.2 Law of Cosines

1. Solve the triangle at right.
2. Solve the triangle at right.



3. Find the area of the triangle below. Show all of your steps.



### Lesson 1.4.1 Radian Measure

1. Convert the following angle measures from degrees to radians or radians to degrees.
  - a.  $75^\circ$
  - b.  $\frac{7\pi}{12}$  radians
3. A wheel is spinning at 430 revolutions per minute. How many radians per second is that?
4. Mike notices that it takes him 5 seconds to ride his bike 100 feet. The wheels on his bike have a diameter of 26 inches.
  - a. How many revolutions per second are the wheels making?
  - b. How many radians per second are the wheels spinning at?

### Lesson 1.4.2 Common Angles in the Unit Circle

1. Find the angle between 0 and  $2\pi$  that is coterminal with the given angle. Draw a picture of that angle in the unit circle.
  - a.  $-\frac{\pi}{3}$
  - b.  $\frac{9\pi}{4}$
2. Find both a positive and a negative angle that are coterminal with  $\frac{3\pi}{4}$ .